UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

April 26, 1999

VIA U.S. EXPRESS MAIL
[EJ339165397US]

ISP Environmental Services Inc.
c/o Dennis Toft, Esq.
Wolff & Samson
280 Corporate Center
5 Becker Farm Road
Roseland, NJ 07068-1776

Re: LCP Chemicals Inc. Superfund Site
Linden, Union County, N.J.
EPA Order Index No. II-CERCLA-02-99-2015

Dear Counsel:

Enclosed please find the original U.S. Environmental Protection Agency ("EPA") Administrative Order on Consent bearing Index No. II-CERCLA-02-99-2015 ("the Order") for execution by your client. The Order requires your client, ISP Environmental Services, Inc., to perform the Remedial Investigation/ Feasibility Study at the LCP chemicals, Inc. Superfund Site. Upon receiving the signature page from your client, the Order will be submitted to the Regional Administrator for execution on behalf of EPA.

Your client, the Respondent to the Order, had opportunities to confer with EPA officials concerning the Order and negotiated the terms of the Order.

The signature page from your client should be received by my office within 5 calendar days from the date of this letter.

Please call me at (212) 637-3148 if you have any questions regarding the Order.

Sincerely,

Muthu S. Sundram, Esq.
Assistant Regional Counsel
New Jersey Superfund Branch

encl.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

IN THE MATTER OF:	:
LCP CHEMICALS, INC. SUPERFUND SITE	:
ISP Environmental Services, Inc.	:
Respondent	:
Proceeding Under Sections 104, 122(a), and 122(d)(3) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended (42 U.S.C §§ 9604, 9622(a), and 9622(d)(3)).	: Index No. II CERCLA-02-99-2015

ADMINISTRATIVE ORDER ON CONSENT FOR REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

TABLE OF CONTENTS

I. INTRODUCTION

1. This Administrative Order on Consent ("Consent Order") is entered into voluntarily by the United States Environmental Protection Agency ("EPA") and ISP Environmental Services, Inc. ("Respondent"). This Consent Order concerns the preparation of, performance of, and reimbursement for all costs incurred by EPA in connection with a remedial investigation and feasibility study (hereinafter, the "RI/FS") at the LCP Chemicals, Inc. Superfund site (hereinafter, the "Site") located in Linden, Union County, New Jersey, as well as the recovery of past response costs.

II. JURISDICTION

2. This Consent Order is issued to Respondent under the authority vested in the President of the United States by Sections 104, 122(a) and 122(d)(3) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9604, 9622(a) and 9622 (d)(3) ("CERCLA"). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580, 52 Fed. Reg. 2926 (1987), and further delegated to the Regional Administrators on September 13, 1987, by EPA Delegation No. 14-14-C.

3. Respondent agrees to undertake all actions required by the terms and conditions of this Consent Order. Respondent consents to and agrees not to contest the authority or jurisdiction of the Regional Administrator of EPA Region II to issue or enforce this Consent Order, and also agrees not to contest the validity or terms of this Consent Order in any action to enforce its provisions.

III. PARTIES BOUND

4. This Consent Order shall apply to and be binding upon EPA and shall be binding upon Respondent, and the agents, successors, assigns, officers, directors and principals of the Respondent. No change in the ownership or corporate status of Respondent or ownership of the Site shall alter Respondent's responsibilities under this Consent Order.

5. Respondent shall provide a copy of this Consent Order to any subsequent owners or successors before ownership rights or stock or assets in a corporate acquisition are transferred. Respondent shall provide a copy of this Consent Order to all contractors, subcontractors, laboratories, and consultants which are retained to conduct any work performed under this Consent Order, within fourteen (14) days after the effective date of this Consent Order or the date of retaining their services, whichever is later. Respondent shall condition any such contracts upon satisfactory compliance with this Consent Order. Notwithstanding the terms of any contract, Respondent is responsible for compliance with this Consent Order and for ensuring that its subsidiaries, employees, contractors, consultants, subcontractors, agents and attorneys comply with this Consent Order.

IV. STATEMENT OF PURPOSE

6. In entering into this Consent Order, the objectives of EPA and Respondent are: (a) to conduct a remedial investigation ("RI") to determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by the release or threatened release

of hazardous substances, pollutants or contaminants at or from the Site; (b) to determine and evaluate alternatives, through the conduct of a feasibility study ("FS"), to remediate said release or threatened release of hazardous substances, pollutants, or contaminants; (c) to provide for the reimbursement to EPA of response and oversight costs incurred by EPA with respect to the Site; and (d) to provide for reimbursement to EPA of response costs incurred by EPA at the Site prior to the effective date of this Consent Order.

7. The activities conducted under this Consent Order are subject to approval by EPA and shall provide all appropriate necessary information for the RI/FS, with the exception of the risk assessment performed by EPA, and for a record of decision that is consistent with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Part 300. The activities conducted by or on behalf of Respondent under this Consent Order shall be conducted in compliance with all applicable EPA guidances, policies, and procedures.

V. EPA'S FINDINGS OF FACT AND CONCLUSIONS OF LAW

8. The Site is located off of South Wood Avenue on the Tremley Point Peninsula, in Linden, Union County, New Jersey. The Site, which occupies 26 acres on filled marshland in an industrial area, is bordered by South Branch Creek to the east, ISP Environmental Services, Inc. to the north, and Northville Industries, BP Corporation, and Mobil to the northeast, south, and west, respectively. South Branch Creek, a tributary to the Arthur Kill, flows through a portion of the Site via engineered conveyance structures on the north side of the property. GAF Corporation purchased the Site from E. I. du Pont de Nemours and Company on or about September 15, 1949, filled an area of marshland and lowland, and developed it. GAF Corporation produced chlorine (using mercury cell electrolysis) and sodium hydroxide at this location from 1952 to 1972. LCP Chemicals Inc. (a subsidiary of the Hanlin Group, Inc.) of Edison, New Jersey purchased the Site from GAF Corporation in 1972 and continued to produce chlorine until 1985, when production at the plant ceased permanently. Sludge containing mercury from the chlorine production process was discharged to a brine sludge lagoon located on the property. There are approximately thirty-eight residences in the vicinity of the Site, with the nearest residential home being approximately one-half mile west on South Wood Avenue. The peregrine falcon, northern harrier, great blue heron, and little blue heron, all considered to be either threatened or endangered species, are reported to either breed or hunt in the salt marshes near the Site. Prall's Island, located approximately 1,000 feet east of the mouth of the South Branch Creek, is a breeding area and rookery for some of these birds.

9. There have been several documented releases of hazardous substances at the Site, including overflows from the brine sludge lagoon onto the ground surface and into South Branch Creek, which flows adjacent to the Site. In 1981, the New Jersey Department of Environmental Protection ("NJDEP") entered into an Administrative Consent Order with LCP Chemicals, Inc. This Consent Order called for the closure of the brine sludge lagoon and implementation of air, soil, and groundwater monitoring. Analytical results from soil samples collected in 1982 by LCP Chemicals, Inc., revealed elevated levels of mercury at 0-2 feet in depth, with concentrations ranging from 36 milligrams per kilogram (mg/kg) to 772 mg/kg. Surface soil samples collected from the perimeter of the lagoon at that time indicated mercury levels ranging from 27 mg/kg to 1,580 mg/kg. These

results are summarized in a February 1982 report, prepared by Geraghty & Miller, Inc. for LCP Chemicals, Inc., entitled *Waste Lagoon Ground-Water Monitoring*. In January 1995, EPA collected several surface soil, surface water, and sediment samples during a pre-remedial investigation. The highest level of mercury noted in the surface soils was 110 mg/kg. The average concentration of mercury in the sediments downstream of South Branch Creek was 500 mg/kg, with the highest concentration being 1,060 mg/kg. Mercury was detected in the surface water at 93 micrograms per liter (µg/l) near the facility's outfall. Arsenic was also present in most of the samples. The arsenic concentration in the surface water and sediment were 336 mg/l and 318 mg/kg, respectively. The highest level of arsenic in the soil was 17 mg/kg. Zinc (maximum concentration, 833mg/kg) and lead (maximum concentration, 304 mg/kg) were also noted in these samples. These results are summarized in a June 1995 report entitled *Final Draft Site Inspection, LCP Chemicals, Inc.*, prepared by Malcolm Pirnie, Inc. for the EPA.

10. Currently, the contaminated soil and sediment remain unmitigated. Leaching of contaminants into South Branch Creek is possible. The flow of contaminants into the Arthur Kill has not been defined as of yet. Prall's Island, a breeding area and rookery, located approximately 1,000 feet from the South Branch Creek discharge into the Arthur Kill, could be impacted. Groundwater may be impacted from leakage of contaminants into the subsurface. The actual and potential contaminant migration pathways listed above only include those pathways which have currently been identified. Additional actual or potential release or contaminant migration pathways may be identified as a result of subsequent studies.

11. Mercury poses a potential threat to human health. In addition, there is a potential for downstream acute effects to aquatic biota and contamination could be introduced into the food chain via aquatic species.

12. On July 27, 1998, the Site was included on the National Priorities List ("NPL"), established under Section 105 (a) (8) (B) of CERCLA, 42 U.S.C. § 9605 (a) (8) (B), and set forth at 40 C.F.R. Part 300, Appendix B.

13. Respondent to this Consent Order is ISP Environmental Services, Inc.(which has assumed the liabilities of GAF Corporation), 1361 Alps Road, Wayne, NJ 07470, incorporated in the State of Delaware. In addition to ISP Environmental Services, Inc., the following five (5) corporations were also identified as potentially responsible parties (PRPs) for the Site: (a) Caleb Brett (USA), Inc., 5051 Westheimer, Suite 1700, Houston, TX 77056, incorporated in the state of Louisiana; (b) Kuehne Chemical Company, Inc., 86 Hackensack Avenue, South Kearney, NJ 07032, incorporated in the state of New Jersey; (c) Praxair, Inc., Industrial Avenue, P.O. Box 237, Keasbey, NJ 08832, incorporated in the state of Delaware; (d) Union Carbide Corporation, 39 Old Ridgebury Road, Danbury, CT 06817, incorporated in the state of New York, and (e) LCP Chemicals, Inc. (a division of the Hanlin Group, Inc.), c/o McCarter & English, Four Gateway Center, 100 Mulberry Street, P.O. Box 652, Newark, NJ 07101, incorporated in the state of Delaware.

14. Each of the six (6) PRPs, noted in paragraph 13 above, operated at the Site at various times between the years of 1952 and 1996 as follows:

A. GAF Corporation owned the 26-acre property, and operated a chlorine production facility at the Site from 1952 until 1972.

B. Caleb Brett (USA), Inc. operated at the Site, from 1988 at least until 1995, storing various materials including fuel products, asphalt products, vegetable oils, pot ash, and caustic soda.

C. Kuehne Chemical Company operated at the Site, from 1973 at least until 1981, receiving chlorine gas and caustic soda via a pipeline from LCP Chemicals, Inc. to produce sodium hypochlorite.

D. Praxair, Inc. (formerly known as Liquid Carbonic Industries Corporation) operated at the Site, from 1988 at least until 1996, distributing carbon dioxide gas.

E. Union Carbide Corporation operated a hydrogen gas filling and repackaging plant at the Site from 1957 at least until 1990. Union Carbide transferred ownership of their gas filling and repackaging business to Praxair, Inc. in 1992.

F. LCP Chemicals, Inc. purchased the 26-acre property from GAF Corporation in 1972, and continued to operate the chlorine production facility until 1985, when all operations ceased at the Site.

15. Through the years, there have been several documented significant releases at the Site. Overflows of supernatant material from the brine sludge lagoon to the South Branch Creek were observed by the NJDEP in 1972 and 1974. In 1975, a brine recycle pump failed and a breach in the brine sludge lagoon occurred. In 1979, a sodium chloride solution contaminated with inorganic mercury overflowed from the process and the wastewater system, resulting in a release of an estimated 10,000 to 20,000 gallons of this material into South Branch Creek. Releases from piping near a 500,000 gallon tank located on the property were observed in 1980, 1981, and 1982. The volume and nature of the released liquid are unknown.

16. The Site is a "facility" as that term is defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

17. Each of the chemicals detected at the Site, as identified in paragraphs 9 and 15, above, is a "hazardous substance," as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. §9601(14) or is a "pollutant or contaminant" that may present an imminent and substantial danger to public health or welfare under Section 104(a)(1) of CERCLA.

18. The presence of hazardous substances at the Site or the past, present or potential migration of hazardous substances currently located at or emanating from the Site, constitute actual and/or threatened "releases" as defined in section 101(22) of CERCLA, 42 U.S.C. §9601(22).

19. Respondent is a "person" as defined in section 101(21) of CERCLA.

20. Respondent is a responsible party under Sections 104, 107, and 122 of CERCLA, 42 U.S.C. §§ 9604, 9607, and 9622.21. The actions required by this Consent Order are necessary to protect the public health or welfare or the environment, are in the public interest, are consistent with CERCLA and the National Contingency Plan, 40 C.F.R. Part 300 (as amended) ("NCP") and are expected to expedite effective remedial action and minimize litigation.

22. Respondent was given an opportunity to discuss with EPA the basis for issuance of this Consent Order and its terms. Unless otherwise expressly defined in this Consent Order, any terms used in this Consent Order which are defined in CERCLA or in regulations promulgated pursuant to CERCLA shall have the meaning set forth for them in CERCLA or in regulations promulgated pursuant to CERCLA.

VI. NOTICE

23. By providing a copy of this Consent Order to NJDEP, EPA is notifying the State of New Jersey (the "State") that this Consent Order is being issued and that EPA is the lead agency for coordinating, overseeing, and enforcing the response action required by the Consent Order. The attached document entitled "Appendix I - RI/FS Statement of Work" is hereby incorporated by reference into and is enforceable as a part of this Consent Order.

VII. WORK TO BE PERFORMED

24. All work performed under this Consent Order shall be under the direction and supervision of qualified personnel. Within thirty (30) days of the effective date of this Consent Order, Respondent shall notify EPA in writing of the names, titles, and qualifications of the personnel, including contractors, subcontractors, consultants and laboratories to be used in carrying out such work. The qualifications of the persons undertaking the work for Respondent shall be subject to EPA's review, for verification that such persons meet minimum technical background and experience requirements. This Consent Order is contingent upon Respondent's demonstration to EPA's satisfaction that Respondent is qualified to perform the actions set forth in this Consent Order. If EPA disapproves in writing of any person(s)' technical qualifications, Respondent shall notify EPA of the identity and qualifications of the replacements within thirty (30) days of the written notice. If EPA subsequently disapproves of the replacements, EPA reserves the right to terminate this Consent Order and to conduct a complete RI/FS, and to seek reimbursement for costs and penalties from Respondent. During the course of the RI/FS, Respondent shall notify EPA in writing of any changes or additions in the personnel used to carry out such work, providing their names, titles, and qualifications. EPA shall have the same right to approve changes and additions to Personnel as it has hereunder regarding the initial notification.

25. Respondent shall conduct the work required hereunder in accordance with CERCLA, the NCP, and EPA guidance including, but not limited to, the "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (OSWER Directive No. 9355.3-01) (hereinafter, the "RI/FS Guidance"), "Guidance for Data Useability in Risk Assessment" (OSWER Directive #9285.7-05) and guidances referenced therein, as they may be amended or modified by

EPA. The general activities that Respondent is required to perform are identified below, followed by a list of deliverables. The tasks that Respondent must perform are also described in the attached Statement of Work ("SOW") and more fully in the guidance documents, and will be described in detail in an RI/FS work plan to be submitted as a deliverable under this Consent Order. The activities and deliverables identified below shall be developed as provisions in such work plan, and shall be submitted to EPA as provided. All work performed under this Consent Order shall be in accordance with the schedules herein, and in full accordance with the schedules, standards, specifications, and other requirements of the work plan and sampling and analysis plan, as initially approved by EPA, and as they may be amended or modified by EPA. For purposes of this Consent Order, day means calendar day unless otherwise noted in this Consent Order.

A. Task I: Scoping. EPA has determined the site-specific objectives of the RI/FS and has devised a general management approach for the Site, as stated below and in the attached Statement of Work. Respondent shall conduct the remainder of scoping activities as described in the attached Statement of Work and referenced guidances. As part of the scoping activities, Respondent shall provide EPA with the following deliverables:

1. RI/FS Work Plan and Schedule. Within thirty (30) days of gaining access to the Site as provided in Paragraph 50 of this Consent Order, Respondent shall submit to EPA a work plan for the performance of the RI/FS (hereinafter, the "RI/FS Work Plan") which includes, among other things, a detailed schedule for the RI/FS. The work plan shall provide for the completion of the final FS report not more than eighteen (18) months following approval of the FOP. If EPA disapproves of or requires revisions to the RI/FS Work Plan in whole or in part, Respondent shall amend and submit to EPA a revised work plan which is responsive to the directions in all EPA comments, within thirty (30) days of receiving EPA's comments. Respondent may invoke the dispute resolution procedures set forth in Section XVII below, in the event of a dispute between Respondent and EPA regarding EPA's disapproval of, or required revisions to, the RI/FS Work Plan.

2. Field Operations Plan. All sampling and monitoring shall be performed in accordance with the *CERCLA Quality Assurance Manual, Revision 1, EPA Region II*, dated October 1989, and any updates thereto, or an alternate EPA-approved test method, and the guidelines set forth in this Consent Order. All testing methods and procedures shall be fully documented and referenced to established methods or standards.

Within thirty (30) days of EPA's approval of the RI/FS Work Plan, Respondent shall submit to EPA a field operations plan ("FOP"). This plan shall consist of a sampling and analysis plan ("SAP"), a quality assurance project plan ("QAPP"), and a site health and safety plan ("HSP"). If EPA disapproves of or requires revisions to the FOP, in whole or in part, Respondent shall amend and submit to EPA a revised FOP which is responsive to the directions in all EPA comments, within thirty (30) days of receiving EPA's comments. Respondent may invoke the dispute resolution procedures set forth in Section XVII below, in the event of a dispute between Respondent and EPA regarding EPA's disapproval of, or required revisions to, the FOP.

a. The SAP shall address the components described in the attached SOW.

b. The QAPP shall include:

i. Project description;

ii. Project organization and responsibilities, including *curricula vitae* of key personnel;

iii. Quality assurance objectives for measurement;

iv. Sample custody;

v. Calibration procedures;

vi. Analytical procedures;

vii. Data reduction, validation and reporting;

viii. Internal quality control;

ix. Performance and systems audits;

x. Preventive maintenance;

xi. Data assessment procedures;

xii. Corrective actions; and,

xiv. Quality assurance reports.

c. The QAPP shall be completed in accordance with the EPA publication *Test Methods for Evaluating Solid Waste* ("SW846") (November 1986, or as updated) and the EPA documents entitled, *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans*, USEPA QAMS-005/80, and *Guidance for Preparation of Combined Work/Quality Assurance Project Plans for Environmental Monitoring* (USEPA, Office of Water Regulations and Standards, May 1984).

Respondent shall use Quality Assurance/Quality Control ("QA/QC") procedures in accordance with the QAPP submitted and approved by EPA pursuant to this Consent Order, and shall use standard EPA Chain of Custody procedures, as set forth in the *National Enforcement Investigations Center Policies and Procedures Manual*, as revised in November 1984, the *National Enforcement Investigations Center Manual for*

the Evidence Audit, published in September 1981, and SW-846, for all sample collection and analysis activities conducted pursuant to this Consent Order. In addition, Respondent shall:

1. Ensure that all contracts with laboratories used by Respondent for analysis of samples taken pursuant to this Consent Order provide for access for EPA personnel and EPA-authorized representatives to assure the accuracy of laboratory results related to the Site;

2. Ensure that laboratories utilized by Respondent for analysis of samples taken pursuant to this Consent Order perform all analyses according to accepted EPA methods. Accepted EPA methods consist of EPA Drinking Water Method 524.2 and those methods which are documented in the "Contract Lab Program Statement of Work for Inorganic Analysis" and the "Contract Lab Program Statement of Work for Organic Analysis," dated February 1988 (or as updated), or any alternative method that has been approved by EPA for use during this project;

3. Ensure that all laboratories used by Respondent for analysis of samples taken pursuant to this Consent Order participate in an EPA Contract Lab Program ("CLP"), or CLP-equivalent, QA/QC program;

4. Ensure that the laboratories used by Respondent for analysis of samples taken pursuant to this Consent Order perform satisfactorily on Performance Evaluation samples that EPA may submit to those laboratories for purposes of insuring that the laboratories meet EPA-approved QA/QC requirements; and,

5. For any analytical work performed, including that done in a fixed laboratory, in a mobile laboratory, or in on-site screening analyses, Respondent must submit to EPA a "Non-CLP Superfund Analytical Services Tracking System" document for each non-CLP laboratory utilized during a sampling event, within thirty (30) days after acceptance of the analytical results. Upon completion, such documents shall be submitted to the EPA Project Coordinator, with a copy of the transmittal letter to:

Regional Sample Control Coordinator Task Monitor
USEPA-Edison Field Office
Environmental Services Division
2890 Woodbridge Avenue
Edison, NJ 08837

d. Site Health and Safety Plan. The HSP shall conform to 29 CFR §1910.120, "OSHA Hazardous Waste Operations Standards," and the EPA guidance document, "Standard Operating Safety Guidelines" (OSWER, 1988).

3. Following approval or modification by EPA, the RI/FS Work Plan and the FOP shall be deemed to be incorporated into this Consent Order by reference.

B. Task II: Community Relations Plan. EPA will prepare a community relations plan, in accordance with EPA guidance and the NCP. Respondent shall provide information, as requested by EPA, supporting EPA's community relations programs. As requested by EPA, Respondent shall participate in the preparation of all appropriate information disseminated to the public and in public meetings which may be held or sponsored by EPA to explain activities at or concerning the Site.

C. Task III: Site Characterization. Following EPA's written approval or modification of the RI/FS Work Plan and the FOP, Respondent shall implement the provisions of these plans to characterize the nature, quantity, and concentrations of hazardous substances, pollutants, or contaminants at the Site. Respondent shall provide EPA with validated analytical data within sixty (60) days of each sampling activity, in an electronic format (i.e., an IBM-compatible computer disk) in a form showing the location, medium and results. Within seven (7) days of completion of field activities, Respondent shall so advise EPA in writing. Within sixty (60) days of completion of validation of the final set of field data, Respondent shall submit to EPA a Site Characterization Summary Report, as described in the RI/FS SOW. Respondent shall address any comments made by EPA on the Site Characterization Summary Report in the draft RI Report.

D. Task IV: Identification of Candidate Technologies. Within forty-five (45) days of Respondent's receipt of the last set of validated analytical results, Respondent shall submit a Technical Memorandum for the Identification of Candidate Technologies. The candidate technologies identified shall include innovative treatment technologies (as defined in the RI/FS Guidance) where appropriate. If EPA disapproves of or requires revisions to the technical memorandum identifying candidate technologies, in whole or in part, Respondent shall amend and submit to EPA a revised technical memorandum, identifying candidate technologies, which is responsive to the directions in all EPA comments, within thirty (30) days of receiving EPA's comments.

E. Task V: Treatability Studies. At EPA's request, Respondent shall conduct treatability studies, except where Respondent can demonstrate to EPA's satisfaction that they are not needed. The major components of the treatability studies shall include a determination of the need for and scope of studies, the design of the studies, and the completion of the studies. If requested by EPA to undertake treatability studies, Respondent shall provide EPA with the following deliverables:

1. Treatability Testing Statement of Work. If EPA determines that treatability testing is required and so notifies Respondent, Respondent shall, within thirty (30) days thereafter, submit to EPA a Treatability Testing Statement of Work.

2. Treatability Testing Work Plan. Within thirty (30) days of EPA's approval of the Treatability Testing Statement of Work, Respondent shall submit a Treatability Testing Work Plan, including a schedule. Upon its approval by EPA, said schedule shall be deemed incorporated into this Consent Order by reference. If EPA disapproves of or requires revisions to the Treatability Testing Work Plan, in whole or in part, Respondent shall amend and submit to EPA a revised Treatability Testing Work Plan which is responsive to the directions in all EPA comments, within thirty (30) days of receiving EPA's comments.

3. Treatability Study QAPP, HSP, and SAP. Within thirty (30) days of the identification by EPA of the need for a separate or revised QAPP, HSP, and/or SAP, Respondent shall submit to EPA a revised QAPP, HSP and/or SAP, as appropriate. If EPA disapproves of or requires revisions to the revised QAPP, HSP, and/or SAP, in whole or in part, Respondent shall amend and submit to EPA a revised treatability study QAPP, HSP, and/or SAP, which is responsive to the directions in all EPA comments, within thirty (30) days of receiving EPA's comments.

4. Treatability Study Evaluation Report: Within thirty (30) days of completion of any treatability testing, sampling, and analysis, Respondent shall submit a Treatability Study Evaluation Report to EPA. If EPA disapproves of or requires revisions to the Treatability Study Evaluation Report, in whole or in part, Respondent shall amend and submit to EPA a revised Treatability Study Evaluation Report which is responsive to the directions in all EPA comments, within thirty (30) days of receiving EPA's comments.

F. Task VI: EPA's Baseline Risk Assessment. EPA will prepare a baseline risk assessment, which shall be incorporated by Respondent into the RI. Respondent shall make good faith efforts in assisting EPA in the preparation of the Baseline Risk Assessment. The major components of the Baseline Risk Assessment include contaminant identification, exposure assessment, toxicity assessment, and human health, and ecological risk characterization.

EPA will provide sufficient information concerning the baseline risks such that Respondent can begin drafting the Feasibility Study report. This information will normally be in the form of two or more Baseline Risk Assessment memoranda prepared by EPA. One memorandum will generally include a list of the chemicals of concern for human health and ecological effects and the corresponding toxicity values. Another memorandum will list the current and potential future exposure scenarios, exposure assumptions, and exposure point concentrations that EPA plans to use in the Baseline Risk Assessment. Respondent may comment on these memoranda. However, EPA is obligated to respond only to significant comments that are submitted during the formal public comment period.

After considering any significant comments received, EPA will prepare a Baseline Risk Assessment report based on the data presented in the Site Characterization Summary Report. The Baseline Risk Assessment report will be provided to Respondent. EPA will release this report to the public at the same time it releases the final RI report. Both reports will be put into the Administrative Record for the Site.

EPA will respond to all significant comments on the memoranda or the Baseline Risk Assessment that are submitted during the formal comment period in the Responsiveness Summary of the Record of Decision.

G. Task VII: Presentation on Preliminary Findings of the RI, Development of Remedial Action Objectives and Development and Screening of Remedial Alternatives. Respondent shall develop remedial action objectives and develop and screen remedial alternatives. Within sixty (60) days after EPA's submittal of the Baseline Risk Assessment report to Respondent, or within sixty (60) days after EPA's approval of Respondent's Treatability Study Evaluation Report, if treatability studies are undertaken, whichever is later, Respondent shall make a presentation to EPA and the State during which the Respondent shall summarize the preliminary findings of the RI, identify the remedial action objectives, and summarize the development and preliminary screening of remedial alternatives. Respondent shall address any comments made by EPA during this presentation in the appropriate document.

H. Task VIII: Remedial Investigation Report. Within thirty (30) days of the Task VII presentation to EPA, Respondent shall submit to EPA a draft RI report consistent with the RI/FS Work Plan and FOP. If EPA disapproves of or requires revisions to the RI report, in whole or in part, Respondent shall amend and submit to EPA a revised RI report which is responsive to the directions in all EPA comments, within thirty (30) days of receiving EPA's comments.

I. Task IX: Feasibility Study Report. Within sixty (60) days of the Task VII presentation to EPA, Respondent shall submit a draft FS report. Respondent shall refer to the RI/FS Work Plan and the RI/FS Guidance for report content and format. Within twenty-one (21) days of submitting the draft FS report, Respondent shall make a presentation to EPA and the State at which Respondent shall summarize the findings of the draft FS report and discuss EPA's and the State's preliminary comments and concerns associated with the draft FS report. If EPA disapproves of or requires revisions to the draft FS report, in whole or in part, Respondent shall amend and submit to EPA a revised draft FS report which is responsive to the directions in all EPA comments, within thirty (30) days of receiving EPA's written comments.

26. EPA reserves the right to comment on, modify and direct changes for all deliverables required pursuant to this Consent Order. At EPA's sole discretion, Respondent must fully correct all deficiencies and incorporate and integrate all information and comments supplied by EPA either in subsequent or resubmitted deliverables.

27. Respondent shall not proceed further with any subsequent activities or tasks until receiving EPA approval for the following deliverables: RI/FS work plan and FOP, and Treatability Testing Work Plan and Treatability Study FOP (if treatability study work is required to be undertaken). While awaiting EPA approval on these deliverables, Respondent shall proceed with all other tasks and activities which may be conducted independently of these deliverables, in accordance with the schedule set forth in this Consent Order.

28. Upon receipt of the draft FS report, EPA will evaluate, as necessary, the estimates of the risk to the public and environment that are expected to remain after a particular remedial alternative has been completed.

29. For all remaining deliverables not enumerated in the previous paragraph, Respondent shall proceed with all subsequent tasks, activities and deliverables without awaiting EPA approval on the submitted deliverable. EPA reserves the right to stop Respondent from proceeding further, either temporarily or permanently, on any task, activity or deliverable at any point during the RI/FS process.

30. EPA may comment on any report, plan or other submittals by Respondent, and at its discretion, require changes to such report, plan, or other submittals. EPA, in its sole discretion, may subsequently disapprove any revised submissions from Respondent. If the subsequent submittals do not fully reflect any changes recommended by EPA, then EPA, in its sole discretion, may seek stipulated or statutory penalties; perform its own studies, complete the RI/FS (or any portion of the RI/FS) under CERCLA and the NCP, and seek reimbursement from Respondent for their costs; and/or seek any other appropriate relief.

31. In the event that EPA takes over some of the tasks, but not the preparation of the RI and FS reports, Respondent shall incorporate and integrate information supplied by EPA into the final RI and FS reports.

32. Neither failure of EPA to expressly approve or disapprove of Respondent's submissions within a specified time period, nor the absence of comments, shall be construed as approval by EPA. Whether or not EPA gives express approval for Respondent's deliverables, Respondent is responsible for preparing deliverables acceptable to EPA.

33. Respondent shall, prior to any off-Site shipment of hazardous substances from the Site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving state and to EPA's Project Coordinator of such shipment of hazardous substances. However, the notification of shipments shall not apply to any such off-Site shipments when the total volume of such shipments will not exceed ten (10) cubic yards.

A. The notification shall be in writing, and shall include the following information, where available: (1) the name and location of the facility to which the hazardous substances are to be shipped; (2) the type and quantity of the hazardous substances to be shipped; (3) the expected schedule for the shipment of the hazardous substances; and (4) the method of transportation. Respondent shall notify the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state, or to a facility in another state.

B. The identity of the receiving facility and state will be determined by Respondent following the award of the contract for the RI/FS. Respondent shall provide all relevant information, including information under the categories noted in subparagraph (a) above, on the off-Site shipments, as

soon as practical after the award of the contract and before the hazardous substances are actually shipped.

VIII. NOTIFICATION AND REPORTING REQUIREMENTS

34. All reports and other documents submitted by Respondent to EPA (other than the monthly progress reports referred to below) which purport to document Respondent's compliance with the terms of this Consent Order shall be signed by a responsible official(s) for Respondent. For purposes of this Consent Order, a responsible corporate official is an official who is in charge of a principal business function.

35. Until the termination of this Consent Order, Respondent shall prepare and provide EPA with written monthly progress reports which: (1) describe the actions which have been taken toward achieving compliance with this Consent Order during the previous month; (2) describe all actions, data and plans which are scheduled for the following two months and provide other information relating to the progress of work as is customary in the industry; (3) include information regarding percentage of completion, all delays encountered or anticipated that may affect the future schedule for completion of the work required hereunder, and a description of all efforts made to mitigate those delays or anticipated delays; and (4) identify the net worth of the funding mechanism required pursuant to this Consent Order and contain a statement as to whether such net worth is sufficient as required by this Consent Order. These progress reports shall be submitted to EPA by Respondent by the tenth (10th) day of every month following the month of the effective date of this Consent Order.

36. Upon the occurrence of any event during performance of the work required hereunder which event, pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603 requires reporting to the National Response Center, Respondent shall, within twenty-four (24) hours, orally notify the EPA Project Coordinator (or, in the event of the unavailability of the EPA Project Coordinator, the Chief of the Central New York Remediation Section of the Emergency and Remedial Response Division of EPA Region II), in addition to the reporting required by said Section 103. Within twenty (20) days of the onset of such an event, Respondent shall furnish EPA with a written report setting forth the events which occurred and the measures taken, and to be taken, in response thereto.

37. All work plans, reports, notices and other documents required to be submitted to EPA under this Consent Order shall be sent by certified mail, return receipt requested, by overnight delivery or courier to the following addressees:

7 copies: (including 1 unbound copy)
Chief, Central New York Remediation Section
Emergency and Remedial Response Division
United States Environmental Protection Agency
290 Broadway, 20th Floor
New York, New York 10007-1866

Attention: Patricia Simmons, Remedial Project Manager

1 copy: Chief, New Jersey Superfund Branch
Office of Regional Counsel
United States Environmental Protection Agency
290 Broadway, 17th Floor
New York, New York 10007-1866

Attention: Muthu S. Sundram, Esq., Assistant Regional Counsel

4 copies: New Jersey Department of Environmental Protection
401 East State Street
CN-028
Trenton, New Jersey 08625-0028

Attention: Robert Marcolina, Project Manager

1 copy: New Jersey Department of Health and Senior Services
P.O. Box 360
Trenton, New Jersey 08625-0360

Attention: Steven Miller, Ph.D., Project Manager

In addition, when submitting to EPA any written communication required hereunder, Respondent shall simultaneously submit one (1) copy of that communication (unless the given document is a plan or report) to:

New Jersey Department of Environmental Protection
401 East State Street
CN-028
Trenton, New Jersey 08625-0028

Attention: Robert Marcolina, Project Manager

38. Respondent shall give EPA at least fourteen (14) days advance notice of all field work or field activities to be performed by Respondent pursuant to this Consent Order.

IX. MODIFICATION OF THE WORK PLAN

39. If at any time during the RI/FS process, Respondent identifies a need for additional data, a memorandum documenting the need for additional data shall be submitted to the EPA Project Coordinator within twenty (20) days of identification. EPA in its discretion will determine whether the additional data will be collected by Respondent and whether it will be incorporated into reports and deliverables required pursuant to this Consent Order.

40. In the event of conditions posing an immediate threat to human health or welfare or the environment, Respondent shall notify EPA and the New Jersey Department of Environmental

Protection immediately. In the event of unanticipated or changed circumstances at the Site, Respondent shall notify the EPA Project Coordinator (or, in the event of the unavailability of the EPA Project Coordinator, the Chief of the Central New York Remediation Section of the Emergency and Remedial Response Division of EPA Region II) by telephone within twenty-four (24) hours of discovery of the unanticipated or changed circumstances. In addition to the authorities in the NCP, in the event that EPA determines that the immediate threat or the unanticipated or changed circumstances warrant changes in the RI/FS Work Plan and/or FOP, EPA will modify or amend the RI/FS Work Plan and/or FOP in writing accordingly. Respondent shall implement the RI/FS Work Plan and/or FOP as modified or amended.

41. EPA may determine that in addition to tasks defined in the initially-approved RI/FS Work Plan, other additional work may be necessary to accomplish the objectives of the RI/FS. EPA may require, pursuant to this Consent Order, that Respondent perform these response actions in addition to those required by the initially-approved RI/FS Work Plan, including any subsequently approved modifications, if EPA determines that such actions are necessary for a complete RI/FS. Subject to EPA resolution of any dispute pursuant to Section XVII, Respondent shall implement the additional tasks which EPA determines are necessary. The additional work shall be completed according to the standards, specifications and schedule set forth or approved by EPA in a written modification to the RI/FS Work Plan or written RI/FS Work Plan supplement. EPA reserves the right to conduct the work itself at any point, to seek reimbursement for the costs associated with the work from Respondent, and/or to seek any other appropriate relief.

X. FINAL RI/FS, PROPOSED PLAN, PUBLIC COMMENT, RECORD OF DECISION

42. EPA retains the responsibility for the release to the public of the RI and FS reports. EPA retains responsibility for the preparation and release to the public of the proposed remedial action plan and record of decision in accordance with CERCLA and the NCP.

43. EPA will provide Respondent with the proposed remedial action plan, and record of decision.

44. EPA will determine the contents of the administrative record file for selection of the remedial action. Respondent shall submit to EPA documents developed during the course of the RI/FS upon which selection of the remedial action may be based. Respondent shall provide copies of plans, task memoranda including documentation of field modifications, recommendations for further action, quality assurance memoranda and audits, raw data, field notes, laboratory analytical reports, and other reports. Respondent shall additionally submit any previous studies conducted under state, local or other federal authorities relating to selection of the response action and all communications between Respondent and state, local or other federal authorities concerning selection of the response action.

XI. PROJECT COORDINATORS, OTHER PERSONNEL

45. EPA has designated the following individual as its Project Coordinator with respect to the Site:

Patricia Simmons, Remedial Project Manager
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, New York 10007-1866
(212) 637-3865

Not later than seven (7) days after the effective date of this Consent Order, Respondent shall select its own Project Coordinator and shall notify EPA in writing of the name, address, qualifications, job title and telephone number of that Project Coordinator. He or she shall have technical expertise sufficient to adequately oversee all aspects of the work contemplated by this Consent Order. Respondent and EPA's Project Coordinators shall be responsible for overseeing the implementation of this Consent Order and shall coordinate communications between EPA and Respondent. EPA and Respondent may change their respective Project Coordinators. Such a change shall be accomplished by notifying the other party in writing at least ten (10) days prior to the change where possible, and concurrently with the change or as soon thereafter as possible in the event that advance notification is not possible.

46. EPA's Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager and On-Scene Coordinator by the NCP. In addition, EPA's Project Coordinator shall have the authority, consistent with the NCP, to halt any work required by this Consent Order, and to take any necessary response action when she/he determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment. The absence of the EPA Project Coordinator from the area under study pursuant to this Consent Order shall not be cause for the stoppage or delay of work.

47. All activities required of Respondent under the terms of this Consent Order shall be performed only by qualified persons possessing all necessary permits, licenses, and other authorizations required by applicable law.

XII. OVERSIGHT

48. During the implementation of the requirements of this Consent Order, Respondent and its contractors and subcontractors shall be available for such conferences and inspections with EPA as EPA may determine are necessary for EPA to adequately oversee the work being carried out and/or to be carried out.

49. Respondent and its employees, agents, contractors and consultants shall cooperate with EPA in its efforts to oversee Respondent's implementation of this Consent Order.

XIII. SAMPLING, ACCESS AND DATA AVAILABILITY/ADMISSIBILITY

50. If any area to which access is necessary to perform work under this Consent Order is owned in whole or in part by parties other than those bound by this Consent Order, Respondent shall obtain, or use best efforts to obtain, access to the Site within sixty (60) days of the effective date of this

Consent Order. Such agreements shall provide access for EPA, its contractors and oversight officials, NJDEP and its contractors, and Respondent or its authorized representatives, and agreements for such access shall specify that Respondent is not EPA's representative with respect to liability associated with Site activities. Copies of such agreements shall be provided to EPA within ten (10) days of their execution. If access agreements are not obtained within the time referenced above, Respondent shall immediately notify EPA of its failure to obtain access. EPA may, in its sole discretion, obtain access for Respondent, perform those tasks or activities with EPA contractors, or terminate this Consent Order in the event that Respondent cannot obtain access agreements. In the event that EPA performs those tasks or activities with EPA contractors and does not terminate this Consent Order, Respondent shall reimburse EPA for all costs incurred in performing such activities and shall perform all other activities not requiring access to the given property. Respondent additionally shall integrate the results of any such tasks undertaken by EPA into its reports and deliverables. Furthermore, Respondent agrees to indemnify the United States as specified in paragraph 92 of this Consent Order. Respondent shall also reimburse EPA pursuant to paragraph 76 for all costs and attorney fees incurred by the United States in its efforts to obtain access for Respondent.

51. At all reasonable times, EPA and its authorized representatives shall have the authority to enter and freely move about all property at the Site and off-Site areas where work, if any, is being performed, for the purposes of inspecting conditions, activities, the results of activities, records, operating logs, and contracts related to the Site or Respondent and their contractor pursuant to this Consent Order; reviewing the progress of Respondent in carrying out the terms of this Consent Order; conducting tests as EPA or its authorized representatives deem necessary; using a camera, sound recording device or other recording equipment; and verifying the data submitted to EPA by Respondent. Respondent agrees to provide EPA and its designated representatives with access to inspect and copy all records, files, photographs, documents, sampling and monitoring data, and other writings related to work undertaken in carrying out this Consent Order. EPA and its authorized representatives with access to the Site under this paragraph shall comply with all approved health and safety plans.

52. All data, records, photographs and other information created, maintained or received by Respondent or its agents, contractors or consultants in connection with implementation of the work under this Consent Order, including but not limited to contractual documents, quality assurance memoranda, raw data, field notes, laboratory analytical reports, invoices, receipts, work orders and disposal records, shall, without delay, be made available to EPA on request. EPA shall be permitted to copy all such documents and other items.

53. Upon request by EPA, or its designated representatives, Respondent shall provide EPA or its designated representatives with duplicate and/or split samples of any material sampled in connection with the implementation of this Consent Order, or, at EPA's option, allow EPA or its designated representatives to take such samples.

54. Respondent may assert a claim of business confidentiality under 40 C.F.R. § 2.203, covering part or all of the information submitted to EPA pursuant to the terms of this Consent Order, provided such claim is allowed by section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7). This claim shall

be asserted in the manner described by 40 C.F.R. § 2.203(b) and substantiated at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA or the State without further notice to Respondent. Respondent agrees not to assert confidentiality claims with respect to any data related to Site conditions, sampling, or monitoring.

55. Notwithstanding any other provision of this Consent Order, EPA hereby retains all of its information gathering, access and inspection authority under CERCLA, RCRA, and any other applicable statute or regulation.

56. In entering into this Consent Order, Respondent waives any objections to any validated data gathered, generated, or evaluated by EPA, NJDEP or Respondent in the performance or oversight of the work that has been verified according to the quality assurance/quality control (QA/QC) procedures required pursuant to this Consent Order. If Respondent objects to any other data relating to the RI/FS and which is submitted in a monthly progress report in accordance with paragraph 35 herein, Respondent shall submit to EPA a report that identifies and explains its objections, describes its views regarding the acceptable uses of the data, if any, and identifies any limitations to the use of the data. The report must be submitted to EPA within thirty (30) days of the monthly progress report containing the data.

XIV. OTHER APPLICABLE LAWS

57. Respondent shall comply with all laws that are applicable when performing the RI/FS. No local, state, or federal permit shall be required for any portion of the work, including studies, required hereunder which is conducted entirely on-site, where such work is carried out in compliance with Section 121 of CERCLA, 42 U.S.C. § 9621; however, Respondent must comply with the substantive requirements that would otherwise be included in such permits. For any off-Site work performed pursuant to this Consent Order, Respondent shall obtain all permits necessary under applicable laws and shall submit timely applications and requests for any such permits. This Consent Order is not, nor shall it act as, a permit issued pursuant to any federal or state statute or regulation.

XV. RECORD PRESERVATION

58. All records and documents in Respondent's possession that relate in any way to the Site shall be preserved during the conduct of this Consent Order and for a minimum of ten (10) years after commencement of construction of any remedial action which is selected following the completion of the RI/FS. Respondent shall acquire and retain copies of all documents that relate to the Site and are in the possession of its employees, agents, accountants, contractors, or attorneys. After this ten (10)-year period, Respondent shall notify EPA at least ninety (90) days before the documents are scheduled to be destroyed. If EPA requests that the documents be saved, Respondent shall, at no cost to EPA, give the documents or copies of the documents to EPA.

XVI. COMMUNITY RELATIONS

59. Respondent shall cooperate with EPA in providing information relating to the work required hereunder to the public. To the extent requested by EPA, Respondent shall participate in the preparation of all appropriate information disseminated to the public and make presentations at, and participate in, public meetings which may be held or sponsored by EPA to explain activities at or concerning the Site.

XVII. DISPUTE RESOLUTION

60. Any dispute concerning activities or deliverables required under this Consent Order, excluding the baseline risk assessment, shall be resolved as follows: The dispute shall in the first instance be the subject of informal negotiations between EPA and the Respondent and the period for such informal negotiation shall not exceed twenty (20) days from the time the dispute arises. In the event that the parties cannot resolve a dispute by informal negotiations under the preceding sentence, the position advanced by EPA shall be considered binding unless, Respondent notifies EPA's Project Coordinator, in writing, of its objections within five (5) days of after the conclusion of the informal negotiation period. Respondent's written objections shall define the dispute, state the basis of Respondent's objections, and be sent to EPA by certified mail, return receipt requested. EPA and Respondent then have an additional fourteen (14) days to reach agreement. If an agreement is not reached within the fourteen (14) days, Respondent may, within seven (7) days of the conclusion of the aforementioned fourteen (14)-day period, request a determination by the Chief of the New York Remediation Branch of the Emergency and Remedial Response Division, EPA Region II (hereinafter, the "Chief"). Such a request by Respondent shall be made in writing. The Chief's determination is EPA's final decision. Respondent shall proceed in accordance with EPA's final decision regarding the matter in dispute, regardless of whether Respondent agrees with the decision. If Respondent does not agree to perform or does not actually perform the work in accordance with EPA's final decision, EPA reserves the right in its sole discretion to conduct the work itself and seek reimbursement from Respondent of the costs of that work, to seek enforcement of the decision, to seek stipulated penalties, and/or to seek any other appropriate relief. Stipulated penalties, provided in Section XVIII of this Consent Order, with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute as provided in this paragraph. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first (1st) day of noncompliance with any applicable provision of this Consent Order. In the event that Respondent does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XVIII of this Consent Order.

61. Respondent is not relieved of its obligations to perform and conduct activities and submit deliverables on the schedules which are approved by EPA and applicable to the work required pursuant to this Consent Order, while a matter is pending in dispute resolution. The invocation of dispute resolution does not stay the accrual of stipulated penalties under this Consent Order.

XVIII. DELAY IN PERFORMANCE/STIPULATED PENALTIES

62. For each day that Respondent fails to complete a deliverable in a timely manner or fails to produce a deliverable of acceptable quality, or otherwise fails to perform in accordance with the requirements of this Order, Respondent shall be liable for stipulated penalties. Penalties begin to accrue on the day that performance is due or a violation occurs, and shall continue to accrue until the noncompliance is corrected. Where a revised submission by Respondent is required by EPA, stipulated penalties shall continue to accrue until a deliverable satisfactory to EPA is produced. EPA will provide written notice for violations that are not based on timeliness; nevertheless, penalties shall accrue from the day a violation commences. Payment shall be due within thirty (30) days of receipt of a demand letter from EPA.

63. Respondent shall pay interest on any amount due to EPA. The interest shall begin to accrue at the end of the thirty (30)-day period referred to in the previous paragraph, at the rate established by the Department of Treasury pursuant to 31 U.S.C. §3717. Respondent shall further pay a handling charge of one (1) percent, to be assessed at the end of each thirty-one (31)-day period, and a six (6) percent per annum penalty charge, to be assessed if the penalty is not paid in full within ninety (90) days after it is due.

64. Respondents shall make all payments by forwarding a cashier's or certified check to:

U.S. Environmental Protection Agency
EPA - Region 2
Attn: Superfund Accounting
P.O. Box 360188M
Pittsburgh, PA 15251

Checks shall identify the name of the Site, the site identification number, the account number, and the index number of this Order. A copy of the check and of the accompanying transmittal letter shall be sent to the first two addressees listed in paragraph 37 above.

As an alternative, payment may also be provided to our account at Mellon Bank via electronic funds transfer ("EFT"). To effect this payment via EFT, please provide the following information to your bank:

1. Amount of payment
2. Title of Mellon Bank account to receive the payment: EPA
3. Account code for Mellon Bank receiving the payment: 9108544
4. Mellon Bank ABA routing number: 043000261
5. Name of remitter: ISP Environmental Services, Inc.
6. Site identifier: 02HU

Along with this information, please instruct your bank to remit payment in the agreed upon amount via EFT to EPA's account with Mellon Bank.

To ensure that your payment is properly recorded, you should send a letter within one week of the EFT, which references the date of the EFT, the payment amount, the name of the site, the case number, and your name and address to:

John E. La Padula, Chief
New York Remediation Branch
United States Environmental Protection Agency
290 Broadway - 20th Floor
New York, New York 10007-1866

as well as to:

Walter Mugdan, Regional Counsel
United States Environmental Protection Agency
290 Broadway - 17th Floor
New York, New York 10007-1866

65. For the following deliverables, stipulated penalties shall accrue in the amount of $2,500 per day, per violation, for the first seven (7) days of noncompliance; $5,000 per day, per violation, for the eighth (8th) through fourteenth (14th) day of noncompliance; and $7,500 per day, per violation, for the fifteenth (15th) day through the thirtieth (30th) day of noncompliance, and $10,000 per day, per violation, for any violations lasting for more than thirty (30) days:

A. An original and any revised RI/FS work plan.

B. An original and any revised SAP, QAPP, or HSP.

C. An original and any draft RI report.

D. An original and any revised Treatability Testing Work Plan, if required.

E. An original and any revised Treatability Study SAP, QAPP, and/or HSP, if required.

F. An original and any revised Treatability Study Evaluation Report, if required.

G. An original and any revised draft FS Report.

66. For the following deliverables, stipulated penalties shall accrue in the amount of $1,250 per day, per violation, for the first seven (7) days of noncompliance; $2,500 per day, per violation, for the eighth (8th) through fourteenth (14th) day of noncompliance; and$3,750 per day, per violation, for the fifteenth (15th) day through the thirtieth (30th) day of noncompliance, and $5,000 per day, per violation, for all violations lasting beyond thirty (30) days.

A. An original and any revised Site Characterization Summary Report.

B. An original and any revised Identification of Candidate Technologies Memorandum.

C. An original and any revised Treatability Testing Statement of Work.

D. Presentation regarding Findings of RI, Remedial Action Objectives, and Development and Preliminary Screening of Alternatives.

E. Presentation regarding draft FS Report.

F. Certificate of Insurance.

67. For the monthly progress reports, stipulated penalties shall accrue in the amount of $625 per day, per violation, for the first seven (7) days of noncompliance; $1,250 per day, per violation, for the eighth (8th) through fourteenth (14th) day of noncompliance; and $1,875 per day, per violation, for the fifteenth (15th) day through the thirtieth (30th) day, and $2,500 per day, per violation, for all violations lasting beyond thirty (30) days.

68. Respondent may dispute EPA's right to the stated amount of penalties by invoking the dispute resolution procedures under Section XVII herein. Penalties shall accrue but need not be paid during the dispute resolution period. If Respondent does not prevail upon resolution, all penalties shall be due to EPA within thirty (30) days of resolution of the dispute. If Respondent prevails upon resolution, no such penalties shall be payable.

69. In the event that EPA requires that corrections to an interim deliverable be reflected in the next deliverable, rather than requiring that the interim deliverable be resubmitted, no stipulated penalties for that interim deliverable shall accrue.

70. The stipulated penalties provisions of this Consent Order do not preclude EPA from pursuing any other remedies or sanctions which are available to EPA because of Respondent's failure to comply with this Consent Order, including but not limited to conduct of all or part of the RI/FS by EPA. Payment of stipulated penalties does not alter Respondent's obligation to complete performance under this Consent Order.

XIX. FORCE MAJEURE

71. "Force majeure", for purposes of this Consent Order, is defined as any event arising from causes entirely beyond the control of Respondent and of any entity controlling, controlled by, or under common control with Respondent, including Respondent's contractors and subcontractors, that delays the timely performance of any obligation under this Consent Order notwithstanding Respondent's best efforts to avoid the delay. The requirement that Respondent exercise "best efforts to avoid the delay" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent practicable. As a way of example, but not as a way of limitation, increased costs or expenses of any work to be performed under this Consent Order or the financial difficulty of Respondent to perform such work are not considered force majeure events.

72. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Order, whether or not caused by a force majeure event, Respondent shall notify by telephone the EPA Project Coordinator or, in his or her absence, the Chief of the Central New York Remediation Section of the Emergency and Remedial Response Division of EPA Region II, within forty-eight (48) hours of when Respondent knew or should have known that the event might cause a delay. Within five (5) business days thereafter, Respondent shall provide in writing: the reasons for the delay; Respondent's rationale for interpreting the circumstances as constituting a force majeure event (should that be Respondent's claim); the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to mitigate the effect of the delay; and a statement as to whether, in the opinion of Respondent, such event may cause or contribute to an endangerment to public health, welfare or the environment. Such written notice shall be accompanied by all available pertinent documentation including, but not limited to, third-party correspondence. Respondent shall exercise best efforts to avoid or minimize any delay and any effects of a delay. Failure to comply with the above requirements may preclude Respondent from asserting any claim of force majeure.

73. If EPA agrees that the delay or anticipated delay is attributable to force majeure, the time for performance of the obligations under this Consent Order that are directly affected by the force majeure event will be extended for a period of time, determined by EPA, not to exceed the actual duration of the delay caused by the force majeure event. An extension of the time for performance of the obligation directly affected by the force majeure event shall not, of itself, extend the time for performance of any subsequent obligation.

74. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure event or if Respondent objects to the length of the extension determined by EPA pursuant to paragraph 73 above, the issue shall be subject to the dispute resolution procedures set forth in Section XVII of this Consent Order. In order to qualify for a force majeure defense, Respondent shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay was or will be warranted under the circumstances, that Respondent did exercise or is exercising due diligence by using its best efforts to avoid and mitigate the effects of the delay, and that Respondent complied with the requirements of paragraph 72.

75. Should Respondent carry the burden set forth in paragraph 74, the delay at issue shall not be deemed a violation of the affected obligation of this Consent Order.

XX. REIMBURSEMENT

76. Respondent shall reimburse the United States for all response costs which are incurred by the EPA after the effective date of this Consent Order and which relate to this Consent Order. The response costs which Respondent agrees to reimburse EPA for include, but are not limited to, oversight costs, direct and indirect costs, payroll costs, contractor costs, travel costs, laboratory costs and all other costs identified in paragraph 77., below, which are incurred by EPA after the effective date of this Consent Order.

77. EPA will periodically send Respondent billings for response costs. Those billings will be accompanied by a printout of cost data in EPA's financial management system, supplemented, if necessary, by a letter report(s) documenting additional costs incurred by EPA which are not reflected in that printout. The billings will also be accompanied by a calculation of EPA's indirect costs. Such costs may include, but are not limited to, costs incurred by the United States Government in overseeing Respondent's implementation of the requirements of this Consent Order and activities performed by the United States Government as part of the RI/FS and community relations, including any costs incurred while obtaining access. Such costs will include both direct and indirect costs, including but not limited to, time and travel costs of EPA personnel and associated indirect costs, contractor costs, cooperative agreement costs, costs of compliance monitoring, including the collection and analysis of split samples, inspection of RI/FS activities, Site visits, discussions regarding disputes that may arise as a result of this Consent Order, review and approval or disapproval of reports, costs of performing the baseline risk assessment, and costs of redoing any of Respondent's tasks. Respondent shall, within thirty (30) days of receipt of each such billing, remit a cashier's or certified check for the amount of those costs, made payable to the "Hazardous Substance Superfund," or provide payment to EPA's account at Mellon Bank via EFT, following the instructions listed in paragraph 64, above.

78. Respondent shall mail the payments required pursuant to this Section to the following address:

EPA - Region II
Attn: Superfund Accounting
P.O. Box 360188M
Pittsburgh, PA 15251

or provide payment to EPA's account at Mellon Bank via EFT following the instructions listed in paragraph 64, above.

Checks shall include the name of the Site, and the index number of this Consent Order. A copy of each check and of the accompanying transmittal letter shall be sent to the first two addressees listed in paragraph 37, above.

79. Respondent shall pay interest on any amounts overdue under paragraph 76. Such interest shall begin to accrue on the first day that the respective payment is overdue. Interest shall accrue at the rate of interest on investments of the Hazardous Substances Superfund, in accordance with Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

XXI. RESERVATIONS OF RIGHTS AND REIMBURSEMENT OF OTHER COSTS

80. EPA reserves the right to bring an action against Respondent (and/or any other responsible parties) under Section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of all response costs incurred by the United States relating to the Site that are not reimbursed by Respondent, including, but not limited to, all response costs which were incurred by EPA prior to the effective date of this Consent Order, any costs which may be incurred in the event that EPA performs the RI/FS or any

part thereof and all response costs incurred by the United States after the effective date of this Consent Order for response actions relating to the Site.

81. EPA reserves the right to bring an action against Respondent to enforce the requirements of this Consent Order, to collect stipulated penalties assessed pursuant to Section XVIII of this Consent Order, and to assess penalties pursuant to Section 109 of CERCLA, 42 U.S.C. § 9609, or any other applicable provision of law.

82. Except as expressly provided in this Consent Order, each party reserves all rights and defenses it may have. Nothing in this Consent Order shall be construed to limit, in any way, EPA's response or enforcement authorities including, but not limited to, the right to seek injunctive relief, stipulated penalties, statutory penalties, and/or punitive damages.

83. Performance of the work required under the terms of this Consent Order, shall not release Respondent from liability for any response actions, including liability for any removal action(s), remedial design(s), remedial action(s), or any other response actions which may be required at or related to the Site, which are not required by and performed pursuant to the terms of this Consent Order.

XXII. DISCLAIMER

84. By signing and taking actions under this Consent Order, Respondent does not necessarily agree with the Findings of Fact and Conclusions of Law contained herein. Furthermore, the participation of Respondent in this Consent Order shall not be considered an admission of liability and is not admissible in evidence against Respondent in any judicial or administrative proceeding other than a proceeding by the United States, including EPA, to enforce this Consent Order or a judgment relating to it. Respondent retains the right to assert claims against other potentially responsible parties at the Site. However, Respondent agrees not to contest the validity or terms of this Consent Order, or the procedures underlying or relating to it in any action brought by the United States, including EPA, to enforce its terms.

XXIII. OTHER CLAIMS

85. In entering into this Consent Order, Respondent waives any right to seek reimbursement, under Section 106(b) of CERCLA, 42 U.S.C. § 9606(b). Respondent also waives any right to present a claim with respect to such costs under Section 111 or 112 of CERCLA, 42 U.S.C. §§ 9611 or 9612. This Consent Order does not constitute any decision on preauthorization of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2). Respondent further waives all other statutory and common law claims against EPA, including, but not limited to, contribution and counterclaims, relating to or arising out of conduct of the RI/FS or this Consent Order.

86. Nothing in this Consent Order shall constitute or be construed as a release from any claim, cause of action, or demand in law or equity against any "person," as that term is defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21), not a signatory to this Consent Order for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling,

transportation, release, or disposal of any hazardous substances, pollutants, or contaminants found at, taken to, or taken from the Site or to the ownership or operation of any part of the Site. Nothing herein shall constitute a finding that Respondent is the sole responsible party with respect to the release and threatened release of hazardous substances at or from the Site.

87. Respondent shall bear its own costs and attorneys fees.

XXIV. FINANCIAL ASSURANCE, INSURANCE, AND INDEMNIFICATION

88. Within thirty (30) days of the effective date of this Consent Order, Respondent shall establish and maintain financial security initially in the amount of one million dollars in one of the following forms:

(a) A surety bond guaranteeing performance of the work required of Respondent under this Consent Order;

(b) One or more irrevocable letters of credit equaling the total estimated cost of the work required of Respondent under this Consent Order;

(c) A trust fund;

(d) An unconditional written guarantee in favor of the United States to perform the work required of Respondent under this Consent Order, issued by one or more parent corporation or subsidiaries, or by one or more unrelated corporation that have a substantial business relationship with Respondent provided, that Respondent shall demonstrate that such corporation or subsidiary satisfies the general requirements of 40 C.F.R. §264.143(f).

89. If Respondent seeks to demonstrate the ability to complete the Work through a guarantee by a third party pursuant to the preceding paragraph of this Consent Order, Respondent shall demonstrate that the guarantor satisfies the requirements of 40 C.F.R. §264.143(f). If Respondent seeks to demonstrate its ability to complete the work required of Respondent under this Consent Order by means of the financial test or the corporate guarantee pursuant to the preceding paragraph, it shall resubmit sworn statements conveying the information required by 40 C.F.R. §264.143(f) annually on the anniversary of the effective date of this consent Order. In the event that EPA determines at any time that the financial assurance provided pursuant to this Section are inadequate, Respondent shall, within 30 days of receipt of notice of EPA's determination, obtain and present to EPA for approval additional financial assurances meeting the requirements of this Section. Respondent's inability to demonstrate financial ability to complete the work required of Respondent under this Consent Order shall not excuse performance of any activities required under this Consent Order.

90. (a) Prior to commencement of any work under this Consent Order, Respondent shall secure and maintain in force for the duration of this Consent Order and for two (2) years after the completion of all activities required by this Consent Order, Comprehensive General Liability

("CGL") and automobile insurance, with limits of $5,000,000 combined single limit, naming the United States as additional insured thereunder with the right to receive notice addressed to the first two addressees listed in paragraph 41 above in the event of cancellation or amendment. The CGL insurance shall include Contractual Liability Insurance in the amount of $2 million per occurrence, and Umbrella Liability Insurance in the amount of $10 million per occurrence.

(b) Respondent shall also secure and maintain in force for the duration of this Consent Order and for two (2) years after the completion of all activities required by this Consent Order the following:

i. Professional Errors and Omissions Insurance in the amount of $1,000,000 per occurrence.

ii. Pollution Liability Insurance in the amount of $1,000,000 per occurrence, covering as appropriate both general liability and professional liability arising from pollution conditions.

(c) For the duration of this Consent Order, Respondent shall satisfy, and shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of employer's liability insurance and workmen's compensation insurance for all persons performing work on behalf of Respondent, in furtherance of this Consent Order.

(d) If Respondent demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, and, in either case, including the naming of the United States as an additional insured, then with respect to that contractor or subcontractor, Respondent needs only provide that portion of the insurance described above which is not maintained by the contractor or subcontractor.

(e) Prior to commencement of any work under this Consent Order, and annually thereafter on the anniversary of the effective date of this Consent Order, Respondent shall provide to EPA certificates of such insurance and a copy of each insurance policy.

91. At least seven (7) days prior to the commencement of any work by a contractor on behalf of Respondent under this Consent Order, Respondent shall certify to EPA that the required insurance has been obtained by that contractor.

92. Respondent agrees to indemnify and hold the United States Government, its agencies, departments, agents, and employees harmless from any and all claims or causes of action arising from or on account of acts or omissions of Respondent, its employees, agents, servants, receivers, successors, or assignees, or any other persons acting on behalf of Respondent, including, but not limited to, firms, corporations, parent, subsidiaries and contractors, in carrying out activities under this Consent Order. The United States Government or any agency or authorized representative thereof shall not be held as a party to any contract entered into by Respondent in carrying out activities under this Consent Order.

93. Neither the United States Government nor any agency thereof shall be liable for any injuries or damages to persons or property resulting from acts or omissions by Respondent or Respondent's

officers, directors, employees, agents, contractors, consultants, receivers, trustees, successors or assigns in carrying out any action or activity pursuant to this Consent Order.

XXV. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

94. This Consent Order shall be effective on the date it is signed by the Regional Administrator of the U.S. Environmental Protection Agency - Region II.

95. This Consent Order may be amended by mutual agreement of EPA and Respondent. Amendments shall be in writing and shall be effective when signed by EPA. EPA Project Coordinators do not have the authority to sign amendments to this Consent Order.

96. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by Respondent will be construed as relieving Respondent of their obligation to obtain such formal approval as may be required by this Consent Order. Any deliverables, plans, technical memoranda, reports (other than progress reports), specifications, schedules and other documents required to be submitted to EPA pursuant to this Consent Order shall, upon approval by EPA, be deemed to be incorporated in and an enforceable part of this Consent Order.

XXVI. TERMINATION AND SATISFACTION

97. When Respondent concludes that all of the work required by this Consent Order, including the performance of any additional work, payment of costs in accordance with Section XX of this Consent Order, and payment of any stipulated penalties demanded by EPA, has been fully and satisfactorily completed by Respondent, Respondent shall submit a report to EPA describing the basis for that belief and certifying in writing that Respondent has fully performed all of its obligations under the Consent Order. If EPA concludes that Respondent has fully performed all the work, paid all costs and penalties (if any), and completed all obligations required of Respondent by this Consent Order, EPA will so notify Respondent in a letter signed by the Chief, New York Remediation Branch, U.S. Environmental Protection Agency - Region II. This written notification shall release Respondent from any further obligation to perform any work under this Consent Order, other than Respondent's obligation to continue to preserve records pursuant to Section XV of this Consent Order.

98. The certification referred to in paragraph 97, above, shall be signed by a responsible official(s) representing each Respondent. Such representative shall make the following attestation:

"I certify that the information contained in or accompanying this certification is true, accurate, and complete."

For purposes of this Consent Order, a responsible official is a corporate official who is in charge of a principal business function.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Jeanne M. Fox
Regional Administrator
U.S. Environmental Protection Agency
Region II

5/24/95
Date

CONSENT

Respondent identified below has had an opportunity to confer with EPA regarding this Consent Order. Respondent hereby consents to the issuance of this Consent Order and to its terms. The individual executing this Consent Order on behalf of Respondent certifies under penalty of perjury under the laws of the United States and of the State of Respondent's incorporation that he or she is fully and legally authorized to agree to the terms and conditions of this Consent Order and to bind Respondent thereto.

ISP Environmental Services Inc.
NAME OF RESPONDENT

5/13/99
Date

(signature)

Sunil K. Garg
(typed name of signatory)

Vice President, Environmental Services
(title of signatory)

APPENDIX I

RI/FS STATEMENT OF WORK

STATEMENT OF WORK FOR
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

INTRODUCTION

The purpose of this remedial investigation/feasibility study (RI/FS) is to investigate the nature and extent of contamination at and emanating from the LCP Chemicals, Inc. site and to develop and evaluate remedial alternatives. The RI and FS are interactive processes and, with EPA's approval, may be conducted concurrently so that the data collected in the RI influences the development of remedial alternatives in the FS, which in turn affects the data needs and the scope of treatability studies.

Respondent will conduct this RI/FS (except for the community relations plan and baseline risk assessment components) and will produce draft RI and FS reports that are in accordance with this statement of work, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (U.S. EPA, Office of Emergency and Remedial Response, October 1988), and any other guidances that EPA uses in conducting an RI/FS (a list of the primary guidances is attached), as well as any additional requirements in the administrative order. The RI/FS Guidance describes the report format and the required report content. Respondent will furnish all necessary personnel, materials, and services needed, or incidental to, performing the RI/FS, except as otherwise specified in the administrative order.

At the completion of the RI/FS, EPA will be responsible for the selection of a site remedy and will document this selection in a Record of Decision (ROD). The remedial action alternative selected by EPA will meet the cleanup standards specified in CERCLA Section 121. That is, the selected remedial action will be protective of human health and the environment, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements of other laws, will be cost-effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable, and will address the statutory preference for treatment as a principal element. The final RI/FS report, as adopted by EPA, and EPA's baseline risk assessment will, with the administrative record, form the basis for the selection of the Site's remedy and will provide the information necessary to support the development of the ROD.

As specified in CERCLA Section 104(a)(1), as amended by SARA, EPA will provide oversight of Respondent's activities throughout the RI/FS. Respondent will support EPA's initiation and conduct of activities related to the implementation of oversight activities.

TASK I - SCOPING

Scoping is the initial planning process of the RI/FS and is initiated by EPA. During this time, the Site-specific objectives of the RI/FS, including the preliminary remediation goals (PRGs), are determined by EPA. Scoping is therefore initiated prior to negotiations between the potentially responsible parties (PRPs) and EPA, and is continued, repeated as necessary, and refined throughout the RI/FS process. In addition to developing the Site specific objectives of the RI/FS, EPA will determine a general management approach for the Site. Consistent with the general management

approach, the specific project scope will be planned by Respondent and EPA. Respondent will document the specific project scope in a work plan. Because the work required to perform an RI/FS is not fully known at the onset, and is phased in accordance with a Site's complexity and the amount of available information, it may be necessary to modify the work plan during the RI/FS to satisfy the objectives of the study.

When scoping the specific aspects of a project, Respondent must meet with EPA to discuss all project planning decisions and special concerns associated with the Site. The following activities shall be performed by Respondent as a function of the project planning process.

A. Sign Installation

Respondent shall install a sign at the entrance to the Site identifying it as a Superfund Site and stating that Respondent is performing an investigation of the Site under EPA oversight, and providing an EPA telephone number for further information.

B. Site Background

Respondent will gather and analyze the existing Site background information and will conduct a Site visit to assist in planning the scope of the RI/FS.

Collect and Analyze Existing Data and Document the Need for Additional Data

Before planning RI/FS activities, all existing Site data will be thoroughly compiled and reviewed by Respondent. Specifically, this will include presently available data relating to the varieties and quantities of hazardous substances at the Site and past disposal practices. This will also include results from any previous sampling events that may have been conducted. Respondent will refer to Table 2-1 of the RI/FS Guidance for a comprehensive list of data collection information sources. This information will be utilized in determining additional data needs to characterize the Site, better define potential applicable or relevant and appropriate requirements (ARARs), and develop a range of preliminarily identified remedial alternatives. Data Quality Objectives (DQOs) will be established subject to EPA approval which specify the usefulness of existing data. Decisions on the necessary data and DQOs will be made by EPA.

Conduct Site Visit

Respondent will conduct a Site visit during the project scoping phase to assist in developing a conceptual understanding of sources and areas of contamination as well as potential exposure pathways and receptors at the Site. During the Site visit Respondent should observe the Site's physiography, hydrology, geology, and demographics, as well as natural resource, ecological and cultural features. This information will be utilized to better scope the project and to determine the extent of additional data necessary to characterize the Site, better define potential ARARs, and narrow the range of preliminarily identified remedial alternatives.

C. Project Planning

Once Respondent has collected and analyzed existing data and conducted a Site visit, the specific project scope will be planned. Project planning activities include identifying data needs, developing a work plan, designing a data collection program, and identifying health and safety protocols. Respondent will meet with EPA before the drafting of the scoping deliverables below. These tasks are described in Section C. of this task since they result in the development of specific required deliverables.

D. Scoping Deliverables

At the conclusion of the project planning phase, Respondent will submit an RI/FS work plan, which includes, among other things, a detailed schedule for the RI/FS, and a Field Operations Plan (FOP), consisting of a sampling and analysis plan (SAP), a Quality Assurance Project Plan (QAPP), and a Site health and safety plan (HSP). The RI/FS work plan and FOP must be reviewed and approved by EPA prior to the initiation of field activities.

RI/FS Work Plan and Schedule

A work plan documenting the decisions and evaluations completed during the scoping process will be submitted to EPA for review and approval. The work plan should be developed in conjunction with the FOP. The work plan will include a comprehensive description of the work to be performed, including the methodologies to be utilized, as well as a corresponding schedule for completion. In addition, the work plan must include the rationale for performing the required activities. Specifically, the work plan will present a statement of the problem(s) and potential problem(s) posed by the Site and the objectives of the RI/FS. Furthermore, the plan will include a Site background summary setting forth the Site description including the geographic location of the Site, and to the extent possible, a description of the Site's physiography, hydrology, geology, demographics, ecological, cultural and natural resource features; a synopsis of the Site history and a description of previous responses that have been conducted at the Site by local, state, federal, or private parties; a summary of the existing data in terms of physical and chemical characteristics of the contaminants identified, and their distribution among the environmental media at the Site. The plan will recognize EPA's preparation of the community relations plan and baseline risk assessment. In addition, the plan will include a description of the Site management strategy developed by EPA during scoping and a preliminary identification of remedial alternatives and data needs for evaluation of remedial alternatives. The plan will reflect coordination with treatability study requirements (see Tasks I and V). It will include a process for and manner of identifying federal and state ARARs (chemical-specific, location-specific and action-specific) to assist in the development of remedial action objectives, and the initial identification of remedial alternatives and ARARs associated with particular actions. ARAR identification will continue as Site conditions, contaminants, and remedial action alternatives are better defined.

Finally, the major part of the work plan is a detailed description of the tasks to be performed, information needed for each task and for EPA's baseline risk assessment, information to be produced during and at the conclusion of each task, and a description of the work products that will be submitted to EPA. This includes the deliverables set forth in the remainder of this statement of work; a schedule for each of the required activities which is consistent with the RI/FS guidance; and a project management plan, including a data management plan (e.g., requirements for project management systems and software, minimum data requirements, data format and backup data management), monthly reports to EPA and meetings and presentations to EPA at the conclusion of each major phase of the RI/FS. Respondent will refer to Appendix B of the RI/FS Guidance for a comprehensive description of the contents of the required work plan. Because of the unknown nature of the Site and iterative nature of the RI/FS, additional data requirements and analyses may be identified throughout the process. Respondent will submit a technical memorandum documenting the need for additional data, and identifying the DQOs whenever such requirements are identified. In any event, Respondent is responsible for fulfilling additional data and analysis needs identified by EPA consistent with the general scope and objectives of this RI/FS.

The work plan shall provide for the completion of the final FS report not more than eighteen (18) months following approval of the FOP.

Field Operations Plan

Respondent will prepare a FOP, consisting of a SAP, QAPP, and HSP.

Sampling and Analysis Plan

All sampling and monitoring shall be performed in accordance with the *CERCLA Quality Assurance Manual, Revision 1, EPA Region II*, dated October 1989, and any updates thereto, or an alternate EPA-approved test method, and the guidelines set forth in this Consent Order. All testing methods and procedures shall be fully documented and referenced to established methods or standards.

Respondent will prepare a SAP to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data meet DQOs. The SAP provides a mechanism for planning field activities.

The SAP will define in detail the sampling- and data-gathering methods that will be used on the project. It will include sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis.

Quality Assurance Project Plan

The QAPP will describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that will be used to achieve the desired DQOs. The DQOs will at a minimum reflect use of analytic methods to identifying contamination and remediating contamination consistent with the levels for remedial action

objectives identified in the proposed National Contingency Plan, pages 51425-26 and 51433 (December 21, 1988). In addition, the QAPP will address sampling procedures, sample custody, analytical procedures, and data reduction, validation, reporting and personnel qualifications. Field personnel should be available for EPA QA/QC training and orientation where applicable. Respondent will demonstrate, in advance to EPA's satisfaction, that each laboratory it may use is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and DQOs approved in the QAPP for the Site by EPA. The laboratory must have and follow an approved QA program. If a laboratory not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods that would be used at this Site for the purposes proposed and QA/QC procedures approved by EPA will be used. If the laboratory is not in the CLP program, a laboratory QA program must be submitted for EPA review and approval. EPA may require that Respondent submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specifications. Respondent will provide assurances that EPA has access to laboratory personnel, equipment and records for sample collection, transportation and analysis.

Site Health and Safety Plan

An HSP will be prepared in conformance with Respondent's health and safety program, and in compliance with OSHA regulations and protocols. The HSP will include the 11 elements described in the RI/FS Guidance, such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and Site control. It should be noted that EPA does not "approve" Respondent's HSP, but rather EPA reviews it to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the environment.

TASK II - COMMUNITY RELATIONS

The development and implementation of community relations activities are the responsibility of EPA. The critical community relations planning steps performed by EPA include conducting community interviews and developing a community relations plan. Although implementation of the community relations plan is the responsibility of EPA, Respondent may assist by providing information regarding the Site's history, participating in public meetings, or by preparing fact sheets for distribution to the general public. EPA will prepare two or more baseline risk assessment memoranda which will summarize the toxicity assessment and exposure assessment components of the baseline risk assessment. EPA will make these memoranda available to all interested parties for comment and place them in the Administrative Record. (EPA is not required, however, to formally respond to significant comments except during the formal public comment period on the proposed plan.) In addition, Respondent may establish a community information repository, at or near the Site, to house one copy of the administrative record. The extent of PRP involvement in community relations activities is left to the discretion of EPA. Respondent's community relations responsibilities, if any, is specified in the community relations plan. All PRP-conducted community relations activities will be subject to oversight by EPA.

TASK III - SITE CHARACTERIZATION

As part of the RI, Respondent will perform the activities described in this task, including the preparation of a Site characterization summary and an RI report. The overall objective of Site characterization is to describe areas of a Site that may pose a threat to human health or the environment. This is accomplished by first determining a Site's physiography, geology, and hydrology. Respondent may use existing data, where appropriate, to assist in achieving these goals. Surface and subsurface pathways of migration will be defined. Respondent will identify the sources of contamination and define the nature, extent, and volume of the sources of contamination, including their physical and chemical constituents as well as their concentrations at incremental locations to background in the affected media. Respondent will also investigate the extent of migration of this contamination as well as its volume and any changes in its physical or chemical characteristics, to provide for a comprehensive understanding of the nature and extent of contamination at the Site. Using this information, contaminant fate and transport is then determined and projected.

During this phase of the RI/FS, the work plan, SAP, and HSP are implemented. Field data are collected and analyzed to provide the information required to accomplish the objectives of the study. Respondent will notify EPA at least two weeks in advance of the field work regarding the planned dates for field activities, including ecological field surveys, field lay out of the sampling grid, excavation, installation of wells, initiating sampling, installation and calibration of equipment, pump tests, and initiation of analysis and other field investigation activities. Respondent will demonstrate that the laboratory and type of laboratory analyses that will be utilized during Site characterization meets the specific QA/QC requirements and the DQOs of the Site investigation as specified in the SAP. In view of the unknown Site conditions, activities are often iterative, and to satisfy the objectives of the RI/FS it may be necessary for Respondent to supplement the work specified in the initial work plan. In addition to the deliverables below, Respondent will provide a monthly progress report and participate in meetings at major points during the RI/FS.

a. Field Investigation

The field investigation includes the gathering of data to define Site physical and biological characteristics, sources of contamination, and the nature and extent of contamination at the Site. These activities will be performed by Respondent in accordance with the work plan and SAP. At a minimum, this shall address the following:

Implement and Document Field Support Activities

Respondent will initiate field support activities following approval of the work plan and FOP. Field support activities may include obtaining access to the Site, scheduling, and procuring equipment, office space, laboratory services, and/or contractors. Respondent will notify EPA at least two weeks prior to initiating field support activities so that EPA may adequately schedule oversight tasks. Respondent will also notify EPA in writing upon completion of field support activities.

Investigate and Define Site Physical and Biological Characteristics

Respondent will collect data on the physical and biological characteristics of the Site and its surrounding areas including the physiography, geology, and hydrology, and specific physical characteristics identified in the work plan. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts and will be utilized to define potential transport pathways and human and ecological receptor populations. In defining the Site's physical characteristics Respondent will also obtain sufficient engineering data (such as pumping characteristics) for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies.

Define Sources of Contamination

Respondent will locate each source of contamination. For each location, the areal extent and depth of contamination will be determined by sampling at incremental depths on a sampling grid. The physical characteristics and chemical constituents and their concentrations will be determined for all known and discovered sources of contamination. The Respondent shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QA/QC plan and DQOs.

Defining the source of contamination will include analyzing the potential for contaminant release (e.g., long term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information to assess treatment technologies.

Describe the Nature and Extent of Contamination

Respondent will gather information to describe the nature and extent of contamination as a final step during the field investigation. To describe the nature and extent of contamination, Respondent will utilize the information on Site physical and biological characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. Respondent will then implement an iterative monitoring program and any study program identified in the work plan or SAP such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at the Site can be determined. In addition, Respondent will gather data for calculations of contaminant fate and transport. This process is continued until the area and depth of contamination are known to the level of contamination established in the QA/QC plan and DQOs. EPA will use the information on the nature and extent of contamination to determine the level of risk presented by the Site.

b. Data Analyses

Respondent will analyze and evaluate the data to describe: (1) Site physical and biological characteristics, (2) contaminant source characteristics, (3) nature and extent of contamination and

(4) contaminant fate and transport. Results of the Site physical characteristics, source characteristics, and extent of contamination analyses are utilized in the analysis of contaminant fate and transport. The evaluation will include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is appropriate, such models shall be identified to EPA in a technical memorandum prior to their use. All data and programming, including any proprietary programs, shall be made available to EPA together with a sensitivity analysis. The RI data shall be presented in a format (i.e., computer disc or equivalent) to facilitate EPA's preparation of the baseline risk assessment. Respondent shall agree to discuss and then collect any data gaps identified by the EPA that is needed to complete the baseline risk assessment. (See "Guidance for Data Useability in Risk Assessment - OSWER Directive # 9285.7-05 - October 1990.) Also, this evaluation shall provide any information relevant to Site characteristics necessary for evaluation of the need for remedial action in the baseline risk assessment and for the development and evaluation of remedial alternatives. Analyses of data collected for Site characterization will meet the DQOs developed in the QA/QC plan stated in the SAP (or revised during the RI).

c. Data Management Procedures

Respondent will consistently document the quality and validity of field and laboratory data compiled during the RI.

Document Field Activities

Information gathered during Site characterization will be consistently documented and adequately recorded by Respondent in well maintained field logs and laboratory reports. The method(s) of documentation must be specified in the work plan and/or the SAP. Field logs must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

Maintain Sample Management and Tracking

Respondent will maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the development and evaluation of remedial alternatives. Analytical results developed under the work plan will not be included in any Site characterization reports unless accompanied by or cross-referenced to a corresponding QA/QC report. In addition, Respondent will establish a data security system to safeguard chain-of custody forms and other project records to prevent loss, damage, or alteration of project documentation.

d. Site Characterization Deliverables

Respondent will prepare a Site Characterization Summary Report.

Site Characterization Summary Report

After completing field sampling and analysis, Respondent will prepare a concise Site Characterization Summary Report. This report will review the investigative activities that have taken place, and describe and display Site data documenting the location and characteristics of surface and subsurface features and contamination at the Site including the affected medium, location, types, physical state, concentration of contaminants and quantity. In addition, the location, dimensions, physical condition and varying concentrations of each contaminant throughout each source and the extent of contaminant migration through each of the affected media will be documented. The Site characterization summary will provide EPA with a preliminary reference for developing the risk assessment, and evaluating the development and screening of remedial alternatives and the refinement and identification of ARARs.

TASK IV - IDENTIFICATION OF CANDIDATE TECHNOLOGIES

Respondent will identify, in a technical memorandum, subject to EPA review and approval, candidate technologies for a treatability study program during project planning. The listing of candidate technologies will cover the range of technologies required for alternatives analysis. The specific data requirements for the testing program will be determined and refined during Site characterization and the development and screening of remedial alternatives.

Respondent will conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance requirements, and implementability of candidate technologies.

TASK V - TREATABILITY STUDIES

a. Document the need for treatability studies

If remedial actions involving treatment have been identified by Respondent or EPA, treatability studies will be required except where Respondent can demonstrate to EPA's satisfaction that they are not needed. Where treatability studies are needed, initial treatability testing activities (such as research and study design) will be planned to occur concurrently with Site characterization activities.

Treatability testing will be performed by Respondent to assist in the detailed analysis of alternatives. In addition, if applicable, testing results and operating conditions will be used in the detailed design of the selected remedial technology. The following activities will be performed by Respondent.

If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated for this Site on the basis of available information, treatability testing will be conducted. Where it is determined by EPA that treatability testing is required, and unless Respondent can demonstrate to EPA's satisfaction that they are not needed, Respondent will submit a statement of work to EPA outlining the steps and data necessary to evaluate and initiate the treatability testing program.

b. Evaluate treatability studies

Once a decision has been made to perform treatability studies, Respondent and EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing should be made as early in the process as possible to minimize potential delays of the FS. To assure that a treatability testing program is completed on time, and with accurate results, Respondent will submit either a separate treatability testing work plan or an amendment to the original Site work plan for EPA review and approval.

c. Treatability Testing and Deliverables

The deliverables that are required, in addition to the memorandum identifying candidate technologies, where treatability testing is conducted include a work plan, a sampling and analysis plan, and a final treatability evaluation report. EPA may also require a treatability study health and safety plan, where appropriate.

Treatability Testing Work Plan

Respondent will prepare a treatability testing work plan or amendment to the original Site work plan for EPA review and approval describing the Site background, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for treatability testing should be documented as well. If pilot scale treatability testing is to be performed, the pilot-scale work plan will describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-Site, permitting requirements will be addressed.

Treatability Study FOP

If the original SAP, QAPP, and/or HSP is/are not adequate for defining the activities to be performed during the treatability tests, a separate treatability study FOP or amendment to the original FOP will be prepared by Respondent for EPA review and approval. Task 1, Item c. of this statement of work provides additional information on the requirements of the FOP.

Treatability Study Evaluation Report

Following completion of treatability testing, Respondent will analyze and interpret the testing results in a technical report to EPA. Depending on the sequence of activities, this report may be a part of the RI/FS report or a separate deliverable. The report will evaluate each technology's effectiveness, implementability, cost and actual results as compared with predicted results. The report will also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

TASK VI - EPA'S BASELINE RISK ASSESSMENT

EPA will prepare a baseline risk assessment based on the data presented in the Site Characterization Summary Report. The major components of the Baseline Risk Assessment include contaminant identification, exposure assessment, toxicity assessment, and human health, and ecological risk characterization.

TASK VII - PRESENTATION ON PRELIMINARY FINDINGS OF THE RI, DEVELOPMENT OF REMEDIAL ACTION OBJECTIVES AND DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES

Once existing Site information has been analyzed and an understanding of the potential Site risks has been determined by EPA, Respondent shall develop remedial action objectives and develop and screen remedial alternatives for each actually or potentially contaminated medium. Respondent will identify a preliminary range of broadly defined potential remedial action alternatives and associated technologies. The range of potential alternatives should encompass, where appropriate, alternatives in which treatment significantly reduces the toxicity, mobility, or volume of the waste; alternatives that involve containment with little or no treatment; and a no-action alternative.

a. Refine and Document Remedial Action Objectives

Based on EPA's baseline risk assessment, Respondent will review and, if necessary, modify the Site-specific remedial action objectives, specifically the PRGs, that were established by EPA prior to or during negotiations between EPA and Respondent. The revised PRGs will be documented in a technical memorandum that will be reviewed and approved by EPA. These modified PRGs will specify the contaminants and media of interest, exposure pathways and receptors, and an acceptable contaminant level or range of levels (at particular locations for each exposure route).

b. Develop General Response Actions

Respondent will develop general response actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

c. Development and Screening of Remedial Alternatives

The development and screening of remedial alternatives is performed to develop an appropriate range of waste management options that will be evaluated. This range of alternatives should include, as appropriate, options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The following activities will be performed by Respondent as a function of the development and screening of remedial alternatives.

Respondent will begin to develop and evaluate a range of appropriate waste management options that at a minimum ensure protection of human health and the environment, concurrent with the RI Site characterization task.

d. Identify Areas or Volumes of Media

Respondent will identify areas or volumes of media to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of the Site will also be taken into account.

E. Identify, Screen, and Document Remedial Technologies

Respondent will identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at the Site. General response actions will be refined to specify remedial technology types. Technology process options for each of the technology types will be identified either concurrent with the identification of technology types, or following the screening of the considered technology types. Process options will be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more representative processes for each technology type.

f. Assemble and Document Alternatives

Respondent will assemble selected representative technologies into alternatives for each affected medium or operable unit. Together, all of the alternatives will represent a range of treatment and containment combinations that will address either the Site or the operable unit as a whole.

g. Refine Alternatives

Respondent will refine the remedial alternatives to identify contaminant volume addressed by the proposed process and sizing of critical unit operations as necessary. Sufficient information will be collected for an adequate comparison of alternatives. PRGs for each chemical in each medium will also be modified as necessary to incorporate any new risk assessment information presented in EPA's baseline risk assessment report. Additionally, action-specific ARARs will be updated as the remedial alternatives are refined.

h. Conduct and Document Screening Evaluation of Each Alternative

Respondent may perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If necessary, the screening of alternatives will be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable.

i. Presentation on Findings of Remedial Investigation, Remedial Action Objectives, and Development and Screening of Alternatives

Respondent shall make a presentation to EPA and the State during which Respondent shall summarize the preliminary findings of the RI, identify the remedial action objectives, summarize the technology types and process options, and summarize the results and reasoning employed in screening, arraying alternatives that remain after screening, and identifying the action-specific ARARs for the alternatives that remain after screening. Respondent shall address any comments made by EPA during this presentation in the appropriate document.

TASK VIII - DRAFT REMEDIAL INVESTIGATION REPORT

Respondent will prepare and submit a draft RI report to EPA for review and approval. This report shall summarize results of field activities to characterize the Site, sources of contamination, nature and extent of contamination and the fate and transport of contaminants. Respondent will refer to the RI/FS Guidance for an outline of the report format and contents. Following comment by EPA, Respondent will prepare a final RI report which satisfactorily addresses EPA's comments and which incorporates the risk assessment.

TASK IX - FEASIBILITY STUDY REPORT

The detailed analysis of remedial alternatives will be conducted by Respondent to provide EPA with the information needed to allow for the selection of a Site remedy. This analysis is the final task to be performed by Respondent during the FS.

a. Detailed Analysis of Alternatives

Respondent will conduct a detailed analysis of alternatives which will consist of an analysis of each option against a set of nine evaluation criteria and a comparative analysis of all options using the same evaluation criteria as a basis for comparison.

Apply Evaluation Criteria and Document Analysis

Respondent will apply seven of the nine evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will be protective of human health and the environment; will be in compliance with, or include a waiver of, ARARs; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance. (Note: Criteria 8 and Criteria 9 will be addressed by EPA.) For each alternative, Respondent should provide: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative, and (2) a discussion of the individual criterion assessment.

Compare Alternatives Against Each Other and Document the Comparison of Alternatives

Respondent will perform a comparative analysis between the remedial alternatives. That is, each alternative will be compared against the others using the evaluation criteria as a basis of comparison. Identification and selection of the preferred alternative are reserved by EPA.

b. Detailed Analysis Deliverables

Respondent will submit a draft FS report to EPA for review and approval. Once EPA's comments have been addressed by Respondent to EPA's satisfaction, the final FS report may be bound with the final RI report.

Feasibility Study Report

Respondent will prepare a draft FS report for EPA review and comment. This report, as ultimately adopted or amended by EPA, provides a basis for remedy selection by EPA and documents the development and analysis of remedial alternatives. Respondent will refer to the RI/FS Guidance for an outline of the report format and the required report content.

Respondent shall make a presentation to EPA and the State during which Respondent shall summarize the findings of the draft FS report and discuss EPA's and the State's preliminary comments and concerns associated with the draft FS report. Respondent will prepare a final FS report which satisfactorily addresses oral and written EPA's comments.